Name: _____ Class: _____ Date: _____ ID: A

Common Challenges- Reproduction Exam MYP

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

1. After sperm cells are produced, they are mainly stored in the
   a. urethra.
   b. prostate.
   c. epididymis.
   d. seminal vesicles.
   e. bulbourethral gland.
2. Fruits develop from
   a. anthers.
   b. receptacles.
   c. fertilized eggs.
   d. ovaries.
   e. ovules.
3. Which of the following is the *correct* order of floral organs from the outside to the inside of a complete flower?
   a. petals-sepals-stamens-carpels
   b. sepals-stamens-petals-carpels
   c. spores-gametes-zygote-embryo
   d. sepals-petals-stamens-carpels
   e. male gametophyte-female gametophyte-sepals-petals
4. In animals, somatic cells are produced by mitosis and ____ are produced by meiosis.
   a. gametes
   b. clones
   c. zygotes
   d. spores
   e. diploid cells
5. Asexual reproduction and sexual reproduction are different in that
   a. individuals reproducing asexually transmit 100% of their genes to their offspring, whereas individuals reproducing sexually only transmit 50%.
   b. asexual reproduction produces offspring that are genetically identical to the parents, whereas sexual reproduction gives rise to genetically distinct offspring.
   c. asexual reproduction involves a single parent, whereas sexual reproduction involves two.
   d. asexual reproduction only requires mitosis, whereas sexual reproduction always involves meiosis.
   e. all of the above
6. For normal human fertilization to occur,
   a. many ova must be released.
   b. the uterus must be enlarged.
   c. one sperm must penetrate the egg.
   d. many sperm must enter the egg so that mitosis can finish.
   e. the secondary oocyte must implant in the uterus.

7. If the liver cells of an animal have 24 chromosomes, how many chromosomes do its sperm cells have?
   a. 6
   b. 12
   c. 24
   d. 48
   e. 64
8. All of the following could be considered advantages of asexual reproduction in plants *except*
   a. success in a stable environment.
   b. increased agricultural productivity.
   c. cloning an exceptional plant.
   d. production of artificial seeds.
   e. adaptation to change.
9. All of the following are primary functions of flowers *except*
   a. pollen production.
   b. photosynthesis.
   c. meiosis.
   d. egg production.
   e. sexual reproduction.
10. In vertebrate animals, spermatogenesis and oogenesis differ, in that
   a. oogenesis begins at the onset of sexual maturity (puberty).
   b. oogenesis produces four haploid cells, whereas spermatogenesis produces only one functional spermatozoan.
   c. oogenesis produces one functional ovum, whereas spermatogenesis produces four functional spermatozoa.
   d. spermatogenesis begins before birth.
   e. spermatogenesis is not complete until fertilization occurs.
11. In which of the following ways are mature human sperm and ova similar?
   a. They both have the same number of chromosomes.
   b. They are approximately the same size.
   c. They each have a flagellum that provides motility.
   d. They are produced from puberty until death.
   e. They are formed before birth.
12. Which of the following is a form of sexual reproduction?
   a. fragmentation
   b. budding
   c. hermaphroditism
   d. parthenogenesis
   e. fission
13. In men, the excretory and reproductive systems share which structure?
   a. vas deferens
   b. urinary bladder
   c. seminal vesicle
   d. urethra
   e. ureter

14. A mutation in which of the following floral parts would have the greatest potential impact on fertilization?
    a. sepal
    b. petal
    c. stamen
    d. carpel
    e. either C or D
15. Fertilization of human eggs usually takes place in the
    a. ovary.
    b. uterus.
    c. vagina.
    d. oviduct.
    e. labia minora.
16. What comprises the fluid part of human semen?
    a. sperm and testosterone
    b. sperm and secretions from the prostate and bulbourethral glands
    c. sperm and secretions from the prostate gland, bulbourethral glands, and seminal vesicles
    d. sperm and prostaglandins
    e. sperm and anticoagulant enzymes
17. A mutation in which of the following floral parts would have the greatest impact on pollination?
    a. sepal
    b. petal
    c. stamen
    d. receptacle
    e. either C or D
18. What is the narrow opening of the human uterus called?
    a. vagina
    b. cervix
    c. oviduct
    d. fallopian tube
    e. vas deferens
19. Cytokinesis is to nuclear division as ____ is to karyogamy.
    a. basidiogamy
    b. plasmogamy
    c. gametogenesis
    d. symbiosis
    e. parasitism
20. Where are human sperm cells produced?
    a. prostate gland
    b. vas deferens
    c. the seminiferous tubules of the testes
    d. epididymis
    e. endometrium

21. Which of these statements is *true* about human sperm cells?
    a. They are rich in nutrient material.
    b. They are released from the corpus luteum.
    c. They are less numerous than ova.
    d. They are highly motile.
    e. They have 46 chromosomes.
22. What advantage does internal fertilization have compared with external fertilization?
    a. Usually many offspring are produced, ensuring survival of the species.
    b. The time and energy devoted to reproduction is decreased.
    c. The smaller number of offspring often receive a greater amount of parental protection.
    d. The increased survival rate results in rapid population decreases.
    e. Usually a smaller number of offspring are produced, which increases genetic divesrity.
23. How do the daughter cells at the end of mitosis and cytokinesis compare with their parent cell just prior to mitosis?
    a. The daughter cells have twice the number of chromosomes and twice the amount of DNA.
    b. The daughter cells have half the number of chromosomes and half the amount of DNA.
    c. The daughter cells have the same number of chromosomes and half the amount of DNA.
    d. The daughter cells have the same number of chromosomes and the same amount of DNA.
    e. The daughter cells have the same number of chromosomes and twice the amount of DNA.
24. The somatic cells derived from a single-celled zygote divide by which process?
    a. meiosis
    b. mitosis
    c. replication
    d. cytokinesis alone
    e. binary fission
25. What do budding and fragmentation have in common?
    a. Both are types of asexual reproduction.
    b. Both produce large numbers of offspring.
    c. Both occur in sea stars.
    d. Both involve meiosis.
    e. A and B only
26. Which of the following organisms does *not* reproduce cells by mitosis and cytokinesis?
    a. cow
    b. bacterium
    c. mushroom
    d. cockroach
    e. banana tree
27. Which of the following are possible advantages of asexual reproduction?
    a. It allows the species to endure periods of fluctuating or unstable environmental conditions.
    b. It enhances genetic variability in the species.
    c. It enables the species to colonize new regions rapidly.
    d. Both A and B are true.
    e. A, B, and C are true.

28. As an embryo develops, new cells are formed and different types of cells develop by the process of
    a. cell differentiation and meiosis.
    b. fertilization and cell differentiation.
    c. cell division and cell differentiation.
    d. gastrulation and parturition.
    e. cell division and mitosis.
29. In regard to prokaryotic reproduction, which of the following is *true*?
    a. Prokaryotes form gametes by meiosis.
    b. Prokaryotes feature the union of haploid gametes, as do eukaryotes.
    c. Prokaryotic reproduction is energetically costly and time consuming.
    d. Variation in prokaryote populations comes from a source(s) other than the mixing of genes from two parents.
    e. Prokaryotes skip sexual life cycles because their life cycle is too short.
30. Starting with a fertilized egg (zygote), a series of five cell divisions would produce an early embryo with how many cells?
    a. 4
    b. 8
    c. 16
    d. 32
    e. 64
31. Asexual reproduction in animals might involve
    a. fission and budding.
    b. fragmentation and mitosis.
    c. budding and regeneration.
    d. A and B only
    e. A, B, and C
32. Which of the following "vegetables" is botanically a fruit?
    a. potato
    b. lettuce
    c. onion
    d. celery
    e. green beans
33. Arrange the following from largest to smallest, assuming that they all come from the same fungus.
    1. basidiocarp
    2. basidium
    3. basidiospore
    4. mycelium
    5. gill

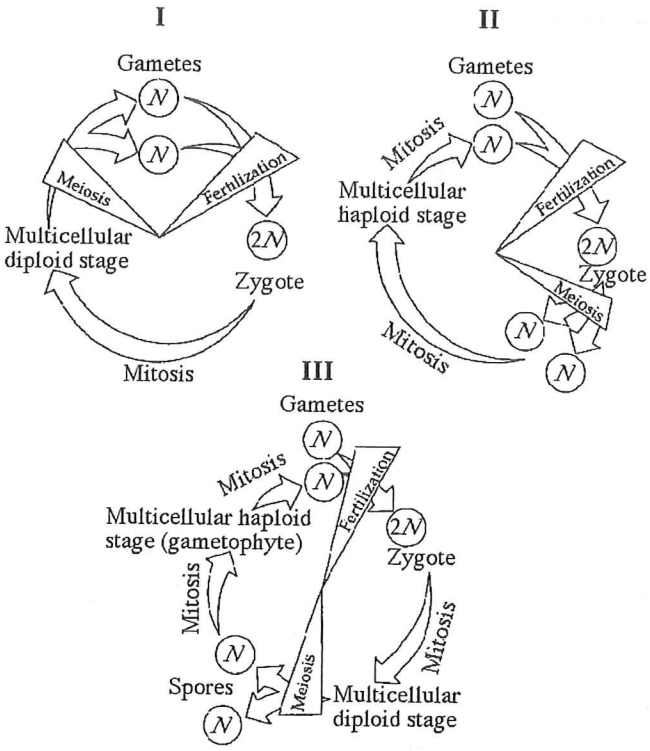
    a. 4, 1, 2, 5, 3
    b. 5, 1, 4, 2, 3
    c. 5, 1, 4, 3, 2
    d. 4, 1, 3, 2, 5
    e. 4, 1, 5, 2, 3

34. Which of these individuals is most likely to be successful in an evolutionary sense?
    a. a reproductively sterile individual who never falls ill
    b. an organism that dies after 5 days of life but leaves 10 offspring, all of whom survive to reproduce
    c. a male who mates with 20 females and fathers 1 offspring
    d. an organism that lives 100 years and leaves 2 offspring, both of whom survive to reproduce
    e. a female who mates with 20 males and produces 1 offspring
35. Which of the following is a function of the acrosome contents during fertilization?
    a. digests a pathway through the cervix
    b. propels the sperm toward the egg
    c. digest the exterior coats of the egg
    d. nourish the mitochondria of the sperm
    e. trigger the completion of meiosis by the sperm cell
36. Which of the following is *not* required for internal fertilization?
    a. copulatory organ
    b. sperm receptacle
    c. behavioral interaction
    d. internal development of the embryo
    e. All of the above are necessary for internal fertilization.
37. What is the relationship between pollination and fertilization in flowering plants?
    a. Fertilization precedes pollination.
    b. Pollination easily occurs between plants of different species.
    c. Pollen is formed within megasporacytes so that male and female gametes are near each other.
    d. Pollination brings gametophytes together so that fertilization can occur.
    e. If fertilization occurs, pollination is unnecessary.
38. In plants, which of the following could be an advantage of sexual reproduction as opposed to asexual reproduction?
    a. genetic variation
    b. mitosis
    c. stable populations
    d. rapid population increase
    e. greater longevity
39. All of the following floral parts are directly involved in pollination or fertilization *except* the
    a. stigma.
    b. anther.
    c. sepal.
    d. carpel.
    e. style.
40. In flowering plants, pollen is released from the
    a. anther.
    b. stigma.
    c. carpel.
    d. filament.
    e. pollen tube.

41. Which of the following male and female structures consist largely of erectile tissue richly supplied with nerve endings?
    a. penis and clitoris
    b. vas deferens and oviduct
    c. testes and ovaries
    d. seminiferous tubules and vagina
    e. prostate and ovaries
42. Which of the following structures is *incorrectly* paired with its function?
    a. epididymis—maturation and storage of sperm
    b. oviduct—site of normal embryonic implantation
    c. seminal vesicles—add sugar and mucus to semen
    d. placenta—maternal and fetal exchange organ
    e. prostate gland—adds alkaline substances to semen
43. In animals, meiosis results in gametes, and fertilization results in
    a. spores.
    b. gonads.
    c. zygotes.
    d. sperm and eggs.
    e. clones.
44. Which of the following is *true of the process of meiosis?*
    a. Two diploid cells result.
    b. Four diploid cells result.
    c. Four haploid cells result.
    d. Four cell divisions occur.
    e. Two zygotes result.
45. How do the daughter cells at the end of meiosis and cytokinesis compare with tnormal somatic cells?
    a. They have twice the amount of cytoplasm and half the amount of DNA.
    b. They have half the number of chromosomes and half the amount of DNA.
    c. They have the same number of chromosomes and half the amount of DNA.
    d. They have half the number of chromosomes and one-fourth the amount of DNA.
    e. They have half the amount of cytoplasm and twice the amount of DNA.
46. What is a fungal process that has the *opposite* effect on chromosome number than the effect of meiosis?
    a. mitosis
    b. plasmogamy
    c. cytokinesis
    d. binary fission
    e. karyogamy
47. Under which conditions would asexual plants have the greatest advantage over sexual plants?
    a. an environment that varies on a regular, predictable basis
    b. an environment with irregular fluctuations of conditions
    c. a relatively constant environment with infrequent disturbances
    d. a fire-maintained ecosystem that has distinct seasons
    e. an environment with many herbivores

48. All fruit include
    a. one or more seeds.
    b. the ovary wall.
    c. fleshy cells rich in sugars.
    d. brightly colored pigments to attract animal dispersers.
    e. both A and B

Refer to the life cycles illustrated in the figure below to answer the following questions.



49. Which of the life cycles is typical for animals?
    a. I only
    b. II only
    c. III only
    d. I and II
    e. I and III

50. Eukaryotic sexual life cycles show tremendous variation. Of the following elements, which do *all* sexual life cycles have in common?

I. alternation of generations
II. meiosis
III. fertilization
IV. gametes
V. spores

a. I, IV, and V
b. I, II, and IV
c. II, III, and IV
d. II, IV, and V
e. all of the above

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	5	6	7	8	9
2nd digit	0	1	2	3	4
	5	6	7	8	9
3rd digit	0	1	2	3	4
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4th digit	0	1	2	3	4
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5th digit	0	1	2	3	4
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6th digit	0	1	2	3	4
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1	A	B	C	D	E	F
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46	A	B	C	D	E	F
47	A	B	C	D	E	F
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